

Work Order ID 134085

134085

Page 1

Monday, June 29, 2015 8:32:17 AM

Item ID: D407-667-105

Accept

N900040100

Setup Start ***NS1***

Revision ID:

Stop ***NS2***

Item Name: Fwd Crosstube - High 407

Start Date: 6/29/2015 Start Qty: 1.00

1

Cust Item ID:

Required Date: 6/29/2015 Req'd Qty: 1.00

1

Customer:

Reference:

Approvals:

Process Plan: MLS

Date: JUN 29 2015

Tooling:

Date:

QC:

Date:

SPC (Y/N):

Date:

Run Start ***NR1***

Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
Draw Nbr	Revision Nbr								
D407-667-145	Rev C (DEO)								
DSI9565	A								
DSI9628	A								

100

Document Control

0.00

100

DC

Memo

0.00

Doc.Control -USB or Paperwork

Photocopy bluefile and create labels as per PPP D407-667-105 CHG005

DA8

27

9-89

JUL 20 2015

110

110

Packaging

Packaging

0.00

Packaging

Memo

0.00

BL

15/06/29

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Small Fab ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging Supplier ☐ Engineering ☐ Quality ☐ Other ☐							
Date :		Step #:		QTY Effective :			MRB (QS1042) Approval				
Description Work Order Deviation				Disposition				Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval			
Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐		☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due		FAULT CATEGORY ☐ Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter		☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes		☐ Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Mislabeled ☐ Fit/Function ☐ Misaligned/off center		☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence	
OTHER : ☐											

Work Order ID 134085

Monday, June 29, 2015 8:32:17 AM

134085

Page 2

Item ID: D407-667-105

Accept

N900040100Setup Start ***NS1***

Revision ID:

Item Name: Fwd Crosstube - High 407

Stop ***NS2***

Start Date: 6/29/2015 Start Qty: 1.00

1

Cust Item ID:

Required Date: 6/29/2015 Req'd Qty: 1.00

1

Customer:

Reference:

Approvals:

Process Plan: _____

Date: _____

Tooling: _____

Date: _____

Run Start ***NR1***

QC: _____

Date: _____

SPC (Y/N): _____

Date: _____

Stop ***NR2***Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

120

120

CNC Bend 2

BENDING MACHINE - CROSSTUBES

0.00

Memo

0.00

CNC Alpha 160 Bender

Bend tube as per Dwg D407-667-145 using CNC bender program 407-fw

BL 15/06/19

130

130

QC

QC15- Crosstube Dimensional Check

0.00

Memo

0.00

Quality Control

1 _____ _____DAS
38
9-89

15-06-29

DQA: _____ Date: _____

WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date :	Step #:	QTY Effective :		MRB (QS1042) Approval	
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Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐		FAULT CATEGORY Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Mislabelled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐			
		OTHER : ☐			

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Page 3

Item ID: D407-667-105

Accept

N900040100Setup Start ***NS1***

Revision ID:

Stop ***NS2***

Item Name: Fwd Crosstube - High 407

Start Date: 6/29/2015 Start Qty: 1.00

1

Cust Item ID:

Required Date: 6/29/2015 Req'd Qty: 1.00

1

Customer:

Reference:

Approvals:

Process Plan:

Date:

Tooling:

Date:

Run Start ***NR1***

QC:

Date:

SPC (Y/N):

Date:

Stop ***NR2***Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

140

140

Crosstubes

Crosstubes

0.00

Memo

0.00

BL15/06/29

Crosstubes

***** ENSURE PROPER JIG POSITIONING BEFORE DRILLING*****
VERIFIED BY: EB *****

1- Drill holes & ream using drill Jig DT8541 & DT8542 as per Dwg D407-667-145. Drill all (3) top holes. Holes facing inboard.

***** ENSURE PROPER JIG POSITIONING BEFORE DRILLING*****
VERIFIED BY: mmk *****2- Drill Fwd rivet holes using drill Jig DT8787 fwd as per Dwg D407-667-145.
Note: Fwd side has 3x top holes. Facing inboard.

3- C'sink holes as per Dwg D407-667-145. Allow rivet to sit below surface to compensate for paint.

4- Flip tube and switch drilling Jigs from right to left, left to right. Locate Jigs off existing holes using "T" pins. Drill ONLY 2 top holes ONLY plug most bottom holes to prevent accidental drilling.

***** ENSURE PROPER JIG POSITIONING BEFORE DRILLING*****
VERIFIED BY: mmk *****

5- Drill holes and ream using drill Jig DT8541 & DT8542 as per Dwg D407-667-145. Drill only the top (2) holes.

***** ENSURE PROPER JIG POSITIONING BEFORE DRILLING*****
VERIFIED BY: mmk *****

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
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Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐		FAULT CATEGORY Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Mislabelled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐			
		OTHER : ☐			

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Page 4

Item ID: D407-667-105

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N900040100

Setup Start ***NS1***

Revision ID:

Stop ***NS2***

Item Name: Fwd Crosstube - High 407

Start Date: 6/29/2015 Start Qty: 1.00 ***1***

Cust Item ID:

Required Date: 6/29/2015 Req'd Qty: 1.00 ***1***

Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Run Start ***NR1***
Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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6- Drill Aft rivet holes using drill Jig DT8787 aft as per Dwg D407-667-145.

7- C'sink holes as per Dwg D407-667-145. Allow rivet to sit below surface to compensate for paint.

8- Scribe part # and batch # using vibrating stylus as per Dwg D407-667-145
Inside of Cuff (Do not engrave on outside of tube)

9- *** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE*** Deburr
& Inspect for surface damage. Repair damage within limits as per Dwg D407-667-145

PL 15/06/10 15/07/02

150

QC5- Inspect part completeness to step on W/O 0.00

150

QC

Quality Control

Memo 0.00

*** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE***

JUL 02 2015

DAS
49
9-89

160

0.00

160

HandFXtube

Hand Finishing Crosstubes

Memo 0.00

*** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE***

DAS
41
9-89

15-7-7

1-CLEAN CROSSTUBE WITH WASH'N WIPE

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date :	Step #:	QTY Effective :		MRB (QS1042) Approval	
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Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐		FAULT CATEGORY Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Mislabeled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐			
		OTHER : ☐			

Work Order ID 134085

Monday, June 29, 2015 8:32:17 AM

134085

Page 5

Item ID: D407-667-105

Accept

N900040100

Setup Start

NS1

Revision ID:

Stop

NS2

Item Name: Fwd Crosstube - High 407

Start Date: 6/29/2015 Start Qty: 1.00

1

Cust Item ID:

Required Date: 6/29/2015 Req'd Qty: 1.00

1

Customer:

Reference:

Approvals:

Process Plan:

Date:

Tooling:

Date:

Run Start

NR1

QC:

Date:

SPC (Y/N):

Date:

Stop

NR2

Sequence ID/
Work Center ID

Operation
Description

Set Up/
Run Hours

Tool ID

Tool #

Plan
Code

Accept
Qty

Reject
Qty

Reject
Number

Insp.
Stamp

180

Outsource process - NDT per QSI038 4.1

0.00

180

Outsource2

Memo

0.00

Outsource process - NDT

*** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE***

OUTSIDE SERVICE -CROSSTUBES

Liquid Penetrant Inspection as per QSI 038 Or

Issue P/O: LPI as per ASTM 1417

Level 2 Attach copy of NDT results to work order

210.29049

CL JUL 07 2015

190

0.00

190

Packaging

Packaging

Memo

0.00

Packaging

*** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE***

Inspect for transit damage

Ensure copy of NDT results attached to work order.

IX 8015-07-07

200

0.00

200

QC

QC5- Inspect part completeness to step on W/O

Memo

0.00

Quality Control

*** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE***

Inspect for damage & ensure results are as per Dwg D206-667-145

DAS
38
9-89

JUL 08 2015

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date :	Step #:	QTY Effective :			MRB (QS1042) Approval
Description Work Order Deviation		Disposition			Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval
Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐		FAULT CATEGORY Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Mislabelled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐			
OTHER : ☐					

Work Order ID 134085

Monday, June 29, 2015 8:32:17 AM

134085

Page 6

Item ID: D407-667-105

Accept

N900040100Setup Start ***NS1***

Revision ID:

Stop ***NS2***

Item Name: Fwd Crosstube - High 407

Start Date: 6/29/2015 Start Qty: 1.00

1

Cust Item ID:

Required Date: 6/29/2015 Req'd Qty: 1.00

1

Customer:

Reference:

Approvals:

Process Plan: _____

Date: _____

Tooling: _____

Date: _____

Run Start ***NR1***

QC: _____

Date: _____

SPC (Y/N): _____

Date: _____

Stop ***NR2***Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

204

0.00

204

HandFXtube

Memo

0.00

Hand Finishing Crosstubes

*** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE***

1- PRESSURE WASH AND THEN USE WASH'N WIPE TO CLEAN
CROSSTUBE BEFORE CHEMICAL CONVERSION

DAS

41

9-89

15-7-7

206

QC7-Inspect Chemical Conversion Coat

0.00

206

QC

Memo

0.00

Quality Control

*** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE***

DAS

38

9-89

JUL 08 2015

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION		AGAINST DEPARTMENT/PROCESS				
	Rework ☐		Skid-tube ☐	Cross tube ☐	Water Jet ☐	Engineering ☐	
	Scrap ☐		Machining ☐	Small Fab ☐	Prod. Eng. Coord. ☐	Quality ☐	
	Use-as-is ☐		Thermoforming ☐	Finishing ☐	Rec/Store/Packaging ☐	Other ☐	
	Suspected Unapproved ☐		Large Fab ☐	Composite ☐	Supplier ☐		

Date :	Step #:	QTY Effective :	MRB (QSI042) Approval
--------	---------	-----------------	-----------------------

Description Work Order Deviation	Disposition	Completed By
		Lead hand / Supervisor Approval Verification
		QC / QA Coordinator Approval

Root Cause			FAULT CATEGORY			
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐	
Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐	
Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐	
Equip/Tooling ☐	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐	
Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐	
Material ☐	Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐	
Internal Transport ☐	Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐	
Tribal Knowledge ☐	Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐	
LOA ☐	Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐	
Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐	
Past Expiry Date ☐	Manufacturing Process ☐					
Misidentified ☐	Past Due ☐	OTHER :				

Monday, June 29, 2015 8:32:17 AM

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~~9-89~~

④ 15.07.22

DQA: _____ Date: _____

WORK ORDER NON-CONFORMANCE / UPDATE



QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
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OTHER : ☐					

134085

Page 8

Accept

N900040100

Setup Start *NS1*

Stop *NS2*

Start Date: 6/29/2015 **Start Qty:** 1.00 ***1***

Cust Item ID:

Required Date: 6/29/2015 **Req'd Qty:** 1.00 ***1***

Customer:

Reference:

Approvals: **Process Plan:** _____ **Date:** _____ **Tooling:** _____ **Date:** _____
 QC: _____ **Date:** _____ **SPC (Y/N):** _____ **Date:** _____

Run	Start	*NR1*
	Stop	*NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
230		0.00							
230	Crosstubes								DAS 41
Crosstubes	Memo	0.00				1			9-89
Crosstubes									15-7-9
	INSTALL GROUNDING CLAMP AND SEAL WITH SIKAFLEX AS PER DWG AND DEO A/R SIKAFLEX BATCH: <u>132392</u> <u>exp 2/16</u>								
	1-Abrade mating surfaces of support and crosstube with 180 grit sandpaper, clean the area with MEK or equivalent as per dwg								
	2-Install supports with Proseal 890 per D407-667-145 (DEO) and QSI 015 A/R Proseal 890 Batch: <u>132226</u> EXP: <u>12/15</u>								
	3-Install supports clamps Using Dt9565 as per Dwg D407-667-145 (DEO),Torque to 80-100 IN-LBS. PROSEAL CURE TIME-72 HOURS: Start: <u>15-7-9</u> Finish: <u>15-7-12</u>								
	4-Install nut plates as per Dwg D407-667-145. Touch-up rivet heads with Imron paint.								

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date :	Step #:	QTY Effective :		MRB (QSI042) Approval	
Description Work Order Deviation		Disposition		Completed By	
				Lead hand / Supervisor Approval Verification	
				QC / QA Coordinator Approval	
Root Cause		FAULT CATEGORY			
Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐	No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐	Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐	Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐	Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Misabeled ☐ Fit/Function ☐ Misaligned/off center ☐	Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐
OTHER : ☐					

Work Order ID 134085

Monday, June 29, 2015 8:32:17 AM

134085

Page 9

Item ID: D407-667-105

Accept

N900040100Setup Start ***NS1***

Revision ID:

Item Name: Fwd Crosstube - High 407

Stop ***NS2***

Start Date: 6/29/2015 Start Qty: 1.00

1

Cust Item ID:

Required Date: 6/29/2015 Req'd Qty: 1.00

1

Customer:

Reference:

Approvals:

Process Plan: _____

Date: _____

Tooling: _____

Date: _____

Run Start ***NR1***

QC: _____

Date: _____

SPC (Y/N): _____

Date: _____

Stop ***NR2***Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

240

QC5- Inspect part completeness to step on W/O

0.00

240

QC

Memo

0.00

Quality Control

***RE-CHECK TORCQUE ON CLAMP AFTER PROSEAL HAS CURED
FOR 72HOURS AS PER DWG.***

VERIFY RESISTANCE AS PER NOTE 18 AND DWG DEO

① 1507-22 DAS
9
9-89

250

Pick Kit

0.00

250

Packaging

Memo

0.00

Packaging

① JZ JUL 14 2015 DAS
6
9-89

260

QC4- 100% Inspect kits for completeness

0.00

260

QC

Memo

0.00

Quality Control

DAS
27
9-89

JUL 20 2015

DQA: _____ Date: _____

WORK ORDER NON-CONFORMANCE / UPDATE



QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date :	Step #:	QTY Effective :			MRB (QSI042) Approval
Description Work Order Deviation		Disposition			Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval
Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐		FAULT CATEGORY Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Mislabelled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐			
OTHER : ☐					

Work Order ID 134085

Monday, June 29, 2015 8:32:17 AM

134085

Page 10

Item ID: D407-667-105

Accept

N900040100Setup Start ***NS1***

Revision ID:

Stop ***NS2***

Item Name: Fwd Crosstube - High 407

Start Date: 6/29/2015 Start Qty: 1.00

1

Cust Item ID:

Required Date: 6/29/2015 Req'd Qty: 1.00

1

Customer:

Reference:

Approvals:

Process Plan:

Date:

Tooling:

Date:

Run

Start

NR1

QC:

Date:

SPC (Y/N):

Date:

Stop

NR2Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

270

0.00

270

Packaging

Packaging

Memo

0.00

Packaging

Identify and pack for shipping as per PPP D407-667-105
Location : FG097

JUL 19 2015

DAS
6
889

280

QC21- Final Inspection - Work Order Release

0.00

280

QC

Memo

0.00

Quality Control

MCJ

JUL 21 2015

Shay 7/21/15

MCJ

JUL 21 2015

DQA: _____ Date: _____

WORK ORDER NON-CONFORMANCE / UPDATE



QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date :	Step #:	QTY Effective :			MRB (QS1042) Approval
Description Work Order Deviation		Disposition			Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval
Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐		FAULT CATEGORY Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Mislabelled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐			
OTHER : ☐					

Picklist Print

Monday, June 29, 2015 8:32:21 AM

Page 1

Work Order ID: 134085

134085

Parent Item: D407-667-105

D407-667-105

Parent Item Name: Fwd Crosstube - High 407

Start Date: 6/29/2015

Required Date: 6/29/2015

Start Qty: 1.00

Required Qty: 1.00

Comments:

IPP Rev:F 05.09.01Add holes for compatibility with Bell SkidtubesKJ/JLM
IPP Rev:G 08-05-16 chg QC6 to QC15 DD verified by:EC
IPP Rev:H 08-06-03 update as per DSI9415 (ECN1198) DD verified by:ec
IPP Rev:I 08-07-14 add (scribe inside of tube) seq.6 DD verified by:EC
IPP Rev:J 08-07-28 update as per (par 08-013) DD verified by:EC
IPP Rev K 09.01.06 ECN 08-562 EC verified by:DD IPP REV:L
11.08.05 PER ECN 11-615 DD VERF:EC IPP REV:M 12.08.20
DSI9628 revA (ECN12-631) DD VERF:JLM

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
D206-667-017		Manufactured	No				Each	12.0000		1	DAS 41 9-89		
D206-667-017									**			15-7-13	
Grounding Strap													

Location

Loc Qty

Loc Code

FG

2

97504

2

LG

2

128820

2

LG054

8

129739

3

131747

3

132460

2

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date :	Step #:	QTY Effective :		MRB (QS1042) Approval	
Description Work Order Deviation		Disposition		Completed By	
				Lead hand / Supervisor Approval Verification	
				QC / QA Coordinator Approval	
Root Cause		FAULT CATEGORY			
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐
Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐
Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐
Equip/Tooling ☐	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐
Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐
Material ☐	Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐
Internal Transport ☐	Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐
Tribal Knowledge ☐	Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐
LOA ☐	Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐
Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐
Past Expiry Date ☐	Manufacturing Process ☐				
Misidentified ☐	Past Due ☐	OTHER :			

Picklist Print

Monday, June 29, 2015 8:32:21 AM

Page 2

Work Order ID: 134085

Parent Item: D407-667-105

Parent Item Name: Fwd Crosstube - High 407

134085
D407-667-105

Start Date: 6/29/2015

Required Date: 6/29/2015

Start Qty: 1.00

Required Qty: 1.00

AN5-10A Purchased No 250 Each 179.0000 10 10

AN5-10A
BOLT

Location	Loc Qty	Loc Code
GA	51	
122800	51	
ST299A	126	
132189	50	
5413	4	
M132317	72	
ST338	2	
M131624	2	

DAS
6
9-89

DAS
26
9-89

DAS
27
9-89

AN5-30A Purchased No 250 Each 139.0000 4 4

AN5-30A
BOLT

Location	Loc Qty	Loc Code
ST299A	139	
M127363	139	

DAS
26
9-89

DAS
6
9-89

DAS
27
9-89

AN5-32A Purchased No 250 Each 243.0000 4 4

AN5-32A
Bolt

Location	Loc Qty	Loc Code
ST299A	227	
m131139	96	
m132189	31	
m132536	100	
ST336	16	
m128403	7	
m128634	9	

JUL 15 2015

DAS
6
9-89

DAS
26
9-89

DAS
27
9-89

Monday, June 29, 2015 8:32:21 AM

Shop Packet Print

Page 2

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date :	Step #:	QTY Effective :			MRB (QS1042) Approval
Description Work Order Deviation		Disposition			Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval
Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐		FAULT CATEGORY Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Mislabelled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐			
		OTHER : ☐			

Picklist Print

Monday, June 29, 2015 8:32:21 AM

Work Order ID: 134085

134085

Parent Item: D407-667-105

D407-667-105

Parent Item Name: Fwd Crosstube - High 407

Start Date: 6/29/2015

Required Date: 6/29/2015

Start Qty: 1.00

Required Qty: 1.00

MS21042L5

Purchased

No

250

Each

478.0000

4

4

MS21042L5

Nut

**

132256

DAS

6

9-89

DAS

26

9-89

Location

Loc Qty

Loc Code

GA

146

m127813

146

ST260a

200

m132256

200

ST305

132

m127813

19

m131340

21

m132123

92

DAS
27
9-89

JUL 15 2015

NAS1149D0563J

Purchased

No

250

Each

1,458.000

18

18

NAS1149D0563J

Washer

**

Location

Loc Qty

Loc Code

GA

53

m125807

53

ST260a

1222

m130799

63

m132035

159

m132256

1000

ST269

156

m128257

156

ST271

27

5813

8

m131026

19

DAS
27
9-89

18 JA

JUL 14 2015

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date : _____	Step #: _____	QTY Effective : _____		MRB (QS1042) Approval	
Description Work Order Deviation		Disposition		Completed By	
				Lead hand / Supervisor Approval Verification	
				QC / QA Coordinator Approval	
Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐		FAULT CATEGORY Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Misabeled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐			
OTHER : _____					

Picklist Print

Monday, June 29, 2015 8:32:21 AM

Page 4

Work Order ID: 134085

134085

Parent Item: D407-667-105

D407-667-105

Parent Item Name: Fwd Crosstube - High 407

Start Date: 6/29/2015

Required Date: 6/29/2015

Start Qty: 1.00

Required Qty: 1.00

D407-667-105TRN

Manufactured No

110

Each

2.0000

1

D407-667-105TRN

Crosstube Turning Detail

129297

**

(1)

BL 15/06/29

Location

Loc Qty

Loc Code

LG014

2

132268

1

133609

1

D2873-043

Manufactured No

230

Each

36.0000

2

D2873-043

Nut Plate Assembly

**

2

DAS
41
9-89

15-7-7

Location

Loc Qty

Loc Code

LG

14

128814

14

LG052

22

127801

2

132454

20

D2873-045

Manufactured No

230

Each

49.0000

2

D2873-045

Nut Plate Assembly

**

2

DAS
41
9-89

15-7-7

Location

Loc Qty

Loc Code

LG052

49

125286

2

131863

7

132618

40

Monday, June 29, 2015 8:32:21 AM

Shop Packet Print

Page 4

DQA: _____ Date: _____

WORK ORDER NON-CONFORMANCE / UPDATE



QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date :	Step #:	QTY Effective :			MRB (QSI042) Approval
Description Work Order Deviation		Disposition			Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval
Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐		FAULT CATEGORY Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Mislabelled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐			
OTHER : ☐					

Picklist Print

Monday, June 29, 2015 8:32:21 AM

Work Order ID: 134085

134085

Parent Item: D407-667-105

D407-667-105

Parent Item Name: Fwd Crosstube - High 407

Start Date: 6/29/2015

Requir

Start Qty: 1.00

Requi

D2891-1

Manufactured No

230

Each

33.0000

2

2

DAS

D2891-1

41

9-89

15-7-9

Support 2.25

Location

Loc Qty

Loc Code

FG

2

84164

2

LG052

31

128388

1

131728

10

132440

10

133102

10

2

D3595-063-395

Manufactured No

230

Each

92.0000

4

4

DAS

D3595-063-395

41

9-89

15-7-9

Rubber Cushion 0.63" wide x 3.95" Long

Location

Loc Qty

Loc Code

FG

5

87353

5

LG051

87

115737

4

130643

34

131818

49

4

MS21920-20

Purchased No

Each

109.0000

4

DAS

MS21920-20

41

9-89

15-7-9

Clamp

Location

Loc Qty

Loc Code

FG

2

122254

2

LG050

107

m128650

107

4

Monday, June 29, 2015 8:32:21 AM

Shop Packet Print

DQA: _____ Date: _____

WORK ORDER NON-CONFORMANCE / UPDATE



QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date :	Step #:	QTY Effective :			MRB (QSI042) Approval
Description Work Order Deviation		Disposition			Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval
Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐		FAULT CATEGORY Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Mislabelled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐			
OTHER : ☐					

Picklist Print

Monday, June 29, 2015 8:32:21 AM

Page 6

Work Order ID: 134085

134085

Parent Item: D407-667-105

D407-667-105

Parent Item Name: Fwd Crosstube - High 407

Start Date: 6/29/2015

Required Date: 6/29/2015

Start Qty: 1.00

Required Qty: 1.00

MS20601-AD4W10

Purchased

No

230

Each

400.0000

14

14

DAS

MS20601-AD4W10

41

9-89

15-7-7

RIVET

Location

Loc Qty

Loc Code

LG050

300

M128594

4

M128701

215

M132381

31

M132522

50

LG051

100

131651

50

M131856

50

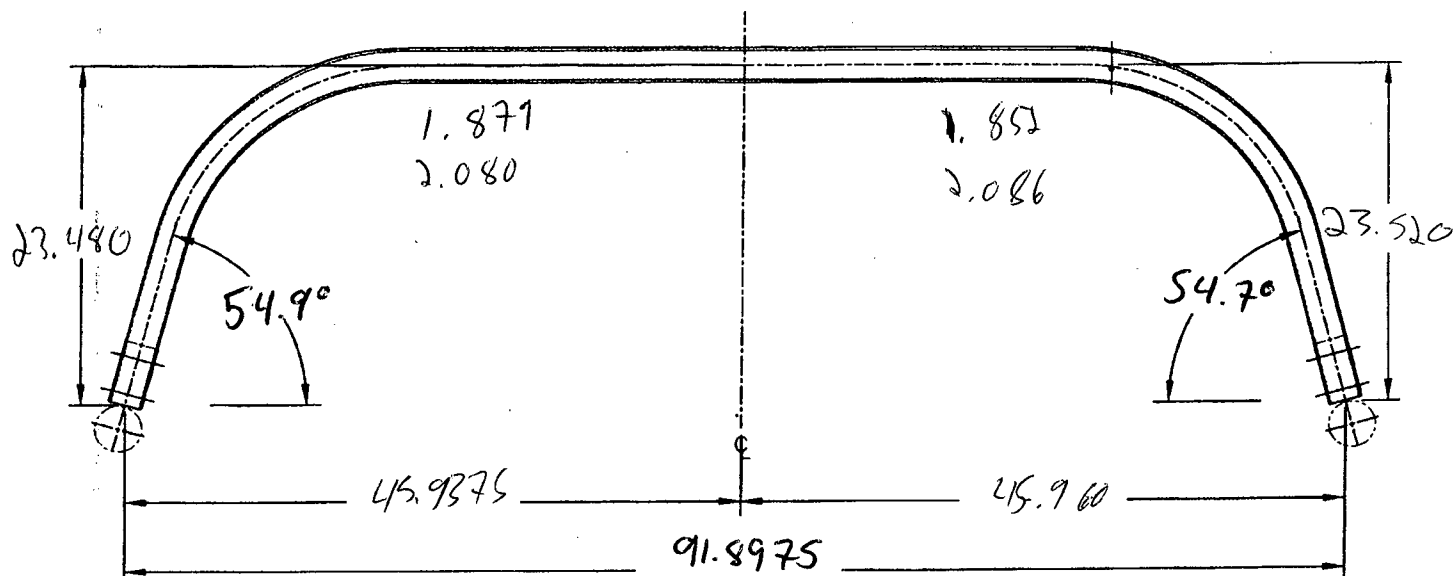
Monday, June 29, 2015 8:32:21 AM

Shop Packet Print

Page 6

DART AEROSPACE LTD	Work Order: 134085
Description: Crosstube High Fwd (407)	Part Number: D407-667-105
Inspection Dwg: D407-667-145 Rev: C	Page 1 of 1

Required Dimension	Min	Max
Height	23.41	23.67
1/2 Span	45.81	46.07
Angle	54	56
Total Span	91.62	92.14
Bending Passes	6	--
Crushing	--	6%



	Side A	Side B
Bending Passes	15	15
Crushing	5.9%	5.9%
Comments		

DAS

38

9-89

QC15 Inspection	15-06-29
Date	

Rev	Date	Change	Revised by	Approved
A	07.02.06	New Issue	KJ/JM	
B	09.11.12	Dimensions updated per Dwg Rev C	KJ	
C	12.04.16	Added bending, crushing dimensions	KJ	
D	12.10.30	Revised Total Span dimensions & Dwg Rev	KJ	

Item	Qty -145	Part Number	Description
1	X	D407-667-145	CROSSTUBE ASSEMBLY (407 HIGH FWD)
2	1	D6010-115	CROSSTUBE
3	2	D2873-043	NUT PLATE
4	2	D2873-045	NUT PLATE
5	2	D2891-1	SUPPORT
6	4	D3595-063-395	RUBBER CUSHION
7	4	MS21920-20	CLAMP (OR MS21920-21)
8	14	MS20601AD4W10	RIVET (OR NAS9302B-4-10)
9	A/R	MAGNOBOND 6398	ROCKWELL SPECIFICATION RBO-120-023 ADHESIVE (TEXTRON/BELL SPEC. 299- 947-100, TYPE II, CLASS 2 ADHESIVE)

GENERAL NOTES:

- 1) MATERIAL: MANUFACTURED FROM D6010-115
FINISHED LENGTH = 113.20±0.020
- 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2
PAINT OUTSIDE PER DART QSI 005 4.2
- 3) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED.
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX.
- 6) IDENTIFICATION: SCRIBE DART PART NUMBER "D407-667-145" AND BATCH NUMBER ON
INSIDE OF CUFF USING VIBRATING STYLUS.
- 7) WEIGHT: 17.8 lbs
- 8) PART IS SYMMETRIC ABOUT CENTERLINE.
- 9) RUN CUTTER OFF PART WHERE INDICATED. BLEND OUT EDGE LONGITUDINALLY,
TRANSITION SHOULD BE SMOOTH.
- 10) BEND PROGRESSIVELY WITH A MINIMUM OF 6 PASSES. MAXIMUM TUBE FLATTENING DUE
TO BENDING IS 6% BASED ON O.D.
- 11) LIQUID PENETRANT INSPECT OUTSIDE SURFACE OF CROSSTUBE PER QSI 038.
- 12) INSTALL D2891-1 SUPPORT USING 0.03" TO 0.06" THICK LAYER OF MAGNOBOND 6398 PER
QSI 015. LET CURE FOR 12 HOURS AFTER INSTALLATION AND PRIOR TO PACKAGING.
- 13) INSTALL MS21920-20 CLAMPS (OR -21) WITH D3595-063-395 RUBBER CUSHIONS TO SECURE
THE D2891-1 SUPPORT ON TOP SIDE OF THE CROSSTUBE. ENSURE CLAMP MECHANISMS
ARE LOCATED ON CROSSTUBE SUPPORTS.
- 14) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE
OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS
SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT
LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.
- 15) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS ARE SHOWING IN
SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING.

SHOP COPY
RETURN TO
ENGINEERING
UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER

NO. 134085 MW

15-06-29

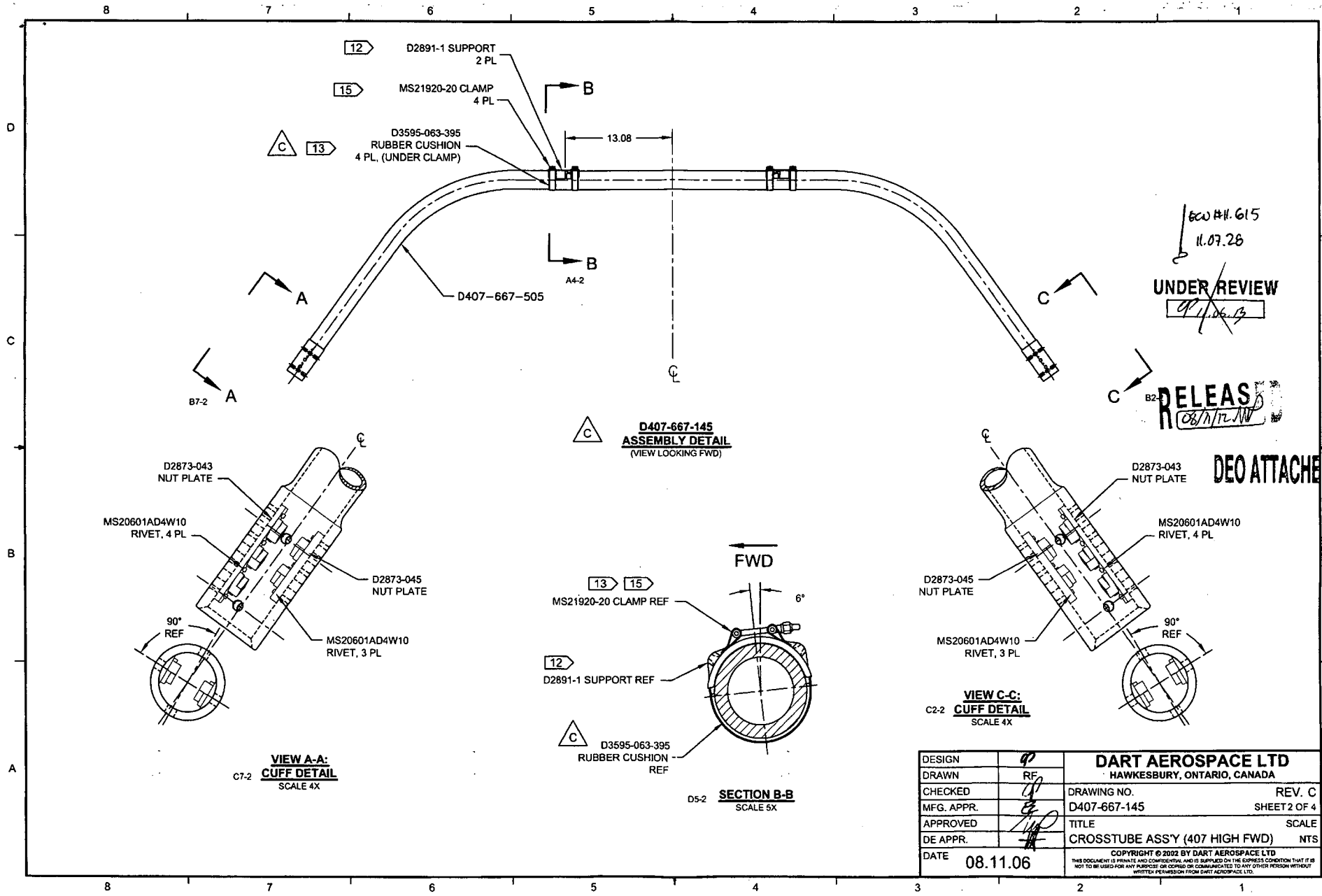
DEO ATTACHED

ECW #11-615
11.07.26

UNDER REVIEW

RELEASED
08/11/12 MW

C	REVISE GENERAL NOTES/PART LIST (ZN D7-1); REORGANIZED VIEWS AND REFORMATTED DRAWING TO CURRENT STANDARDS. D3595-063-395 WAS D2856-400-694 (ZN D6-2 & A5-2); REMOVED REF. 7 ADD TOLERANCES (ZN C6-3, C4-3, D2-3); RELOCATED FLAG #6 (ZN A8-3) PER NCR 210; MOVED TURNING DETAIL & UPDATED TOLERANCE TO SHEET 4.	RF	08.11.06
B	ADD HOLES AND NUT PLATES FOR COMPATABILITY WITH BHT/AA SKUDTUBES	PH	05.07.26
A	NEW ISSUE	CP	02.05.08
REV.	DESCRIPTION	BY	DATE
DESIGN	RF	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	RF	DRAWING NO.	REV. C
CHECKED	RF	D407-667-145	SHEET 1 OF 4
MFG. APPR.	RF	TITLE	SCALE
APPROVED	RF	CROSSTUBE ASS'Y (407 HIGH FWD)	NTS
DE APPR.	RF	COPYRIGHT © 2002 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	
DATE	08.11.06		



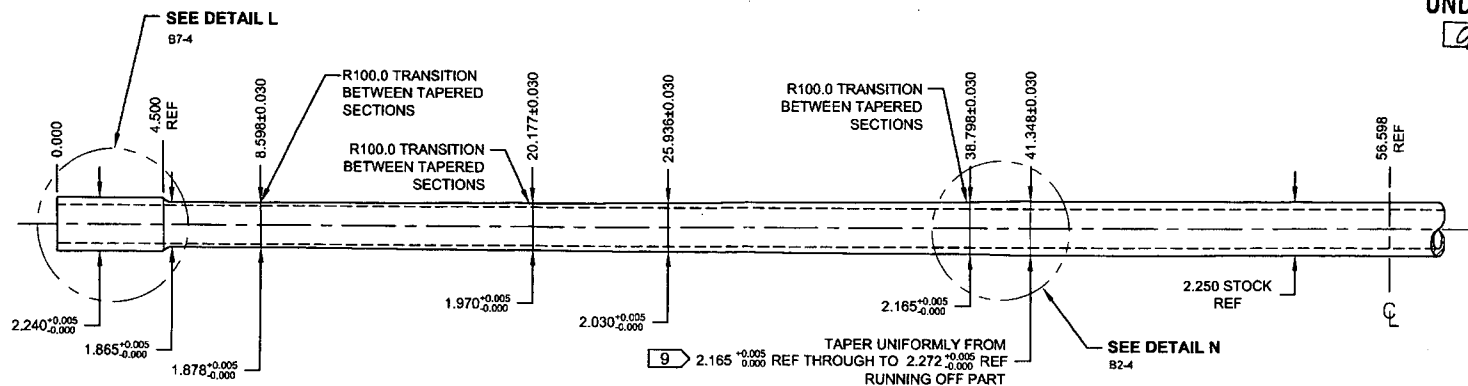
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DRAWN	RF	HAWKESBURY, ONTARIO, CANADA	
CHECKED	97	DRAWING NO.	REV. C
MFG. APPR.	97	D407-667-145	SHEET 2 OF 4
APPROVED	97	TITLE	SCALE
DE APPR.	97	CROSSTUBE ASS'Y (407 HIGH FWD)	NTS
DATE	08.11.06	COPYRIGHT © 2002 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	

UNDER REVIEW

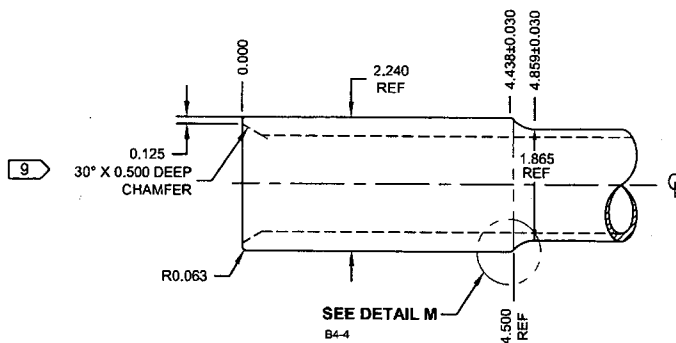
CP 11/08/13

SAW #11-615

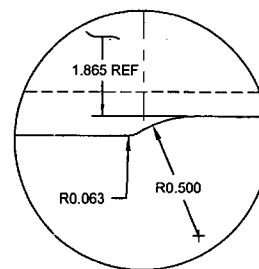
1.07.26



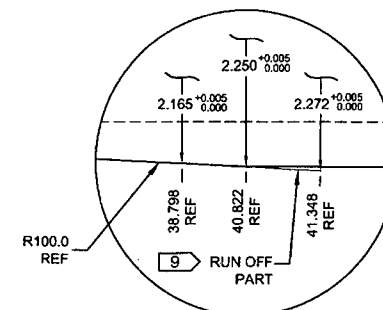
C TURNING DETAIL



**DETAIL L:
CROSSTUBE CUFF**
D7-4 NOT TO SCALE



**DETAIL M:
CUFF TRANSITION**
D6-4 NOT TO SCALE



**DETAIL N:
TAPER RUN-OFF**
C3-4 NOT TO SCALE

DEO ATTACHED

RELEASED

DESIGN	9	DART AEROSPACE LTD	
DRAWN	RF	HAWKESBURY, ONTARIO, CANADA	
CHECKED	CP	DRAWING NO.	REV. C
MFG. APPR.	CP	D407-667-145	SHEET 4 OF 4
APPROVED	CP	TITLE	SCALE
DE APPR.	CP	CROSSTUBE ASS'Y (407 HIGH FWD)	NTS
DATE	08.11.06	COPYRIGHT © 2002 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	

DRAWING NO. D407-667-145	TITLE CROSSTUBE ASS'Y (407 HIGH FWD)	REV. C	DART AEROSPACE LTD ENGINEERING ORDER		D.E.O. NO. D407-667-145-C-1	SHEET NO. SHEET 1 OF 1	SCALE NTS
DRAWN <i>qp</i>	CHECKED <i>ISS</i>	MFG. APPR. <i>ISS</i>	APPROVED <i>WD</i>		DE APPR. <i>WD</i>		
DATE 11.07.15	DATE 11.07.22	DATE 11.07.22	DATE 11/07/22		DATE 11.07.21		

PURPOSE:

REPLACE MAGNOBOND WITH PROSEAL.

CHANGE:

IS:

Item	Qty -145	Part Number	Description
8	A/R	PROSEAL 890 B-2	SEALANT, AMS-S-8802 CLASS B-2

WAS:

9	A/R	MAGNOBOND 6398	ROCKWELL SPECIFICATION RBO-120-023 ADHESIVE (TEXTRON/BELL SPEC. 299-947-100, TYPE II, CLASS 2 ADHESIVE)
---	-----	----------------	---

NOTE 12 & 15, SHEET 1 IS AMENDED AS FOLLOWS:

IS:

12) TO INSTALL D2891-1 SUPPORT: ABRASE MATING SURFACE OF SUPPORT AND CROSSTUBE WITH 180-GRIT SANDPAPER AND REMOVE RESIDUE WITH MEK (OR EQUIVALENT). APPLY A 0.04" TO 0.07" THICK LAYER OF PROSEAL 890 CLASS B-2 (OR AMS-S-8802 CLASS B-2) SEALANT TO MATING SURFACE OF SUPPORT.

15) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING. **PRIOR TO PACKAGING, RE-CHECK TORQUE ON CLAMPS AFTER PROSEAL 890 SEALANT HAS CURED FOR 72 HOURS.**

WAS:

12) INSTALL D2891-1 SUPPORT USING 0.03" TO 0.06" THICK LAYER OF MAGNOBOND 6398 PER QSI 015. LET CURE FOR 12 HOURS AFTER INSTALLATION AND PRIOR TO PACKAGING.

15) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING.

RELEASED
2011-07-28
WD

DRAWING NO. D407-667-145	TITLE CROSSTUBE ASS'Y (407 HIGH FWD)	REV. C	DART AEROSPACE LTD ENGINEERING ORDER		D.E.O. NO. D407-667-145-C-2	SHEET NO. SHEET 1 OF 1	SCALE NTS
DRAWN AJS	CHECKED	MFG. APPR.	APPROVED		DE APPR.		
DATE 12.08.02	DATE 12.08.02	DATE 12.08.02	DATE 12.08.02		DATE 12.08.02		

PURPOSE:

ADD ELECTRICAL GROUNDING STRAP

CHANGE:

ITEM	QTY	PART NUMBER	DESCRIPTION
1	X	D407-667-145	CROSSTUBE ASSEMBLY (407 HIGH FWD)
10	2	AN742D36	CLAMP
11	2	MS9165-05	ANGLE BRACKET
12	2	MS21042L3	NUT (OR MS21042-3)
13	2	MS27039-1-08	SCREW
14	4	NAS1149C0332R	WASHER (OR AN960C10L)

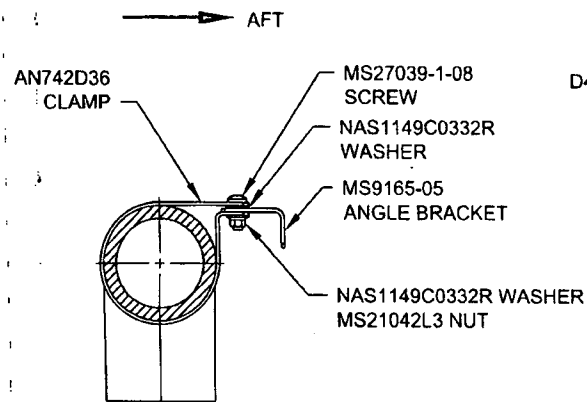
ADD

GENERAL NOTES:

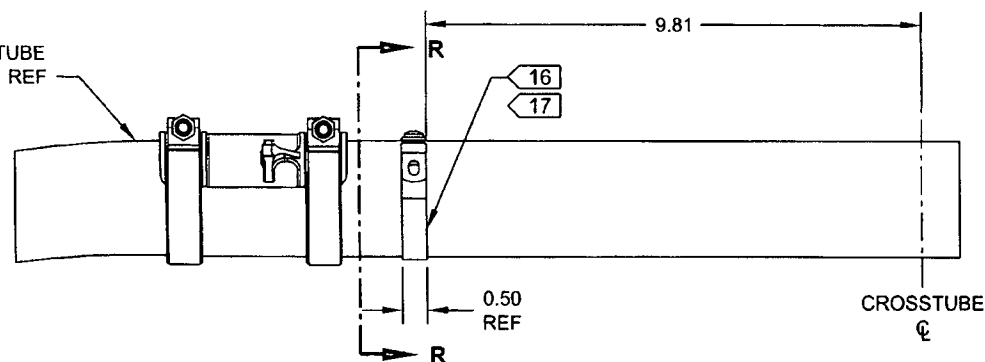
- 16) MASK AREA UNDER CLAMP PRIOR TO PAINTING
- 17) SEAL EDGES WHERE AN742D36 CLAMP MEETS WITH THE CROSSTUBE USING SIKAFLEX-241/-291 OR MIL-S-8802 CLASS B2 OR PROSEAL 890 SEALANT
- 18) PERFORM RESISTANCE CHECK TO ENSURE MAX RESISTANCE IS 10 MILLIOHMS

ADD

RELEASED
CP 12.08.17
ECN 12-631



SECTION R-R



DETAIL P
BONDING STRAP INSTALLATION 2 PL

DART SERVICE INSTRUCTION

TO AMEND INSTRUCTIONS FOR CONTINUOUS AIRWORTHINESS ICA-D206-667 Rev. 3 OR LATER

REF. CANADIAN STC: SH01-5

REF. FAA STC: SR01304NY

REF. EASA STC: EASA.IM.R.S.01179

PURPOSE:

The supports on the following crosstubes are now installed using Proseal instead of Magnobond:

D206-667-101 @ CHG 004

D206-667-103 @ CHG 005

D206-667-107 @ CHG 002

D206-667-201 @ CHG 004

D206-667-203 @ CHG 004

D206-667-207 @ CHG 002

D407-667-105 @ CHG 004

CHANGE:

For the crosstubes listed above, section 32.4 of ICA-D206-667 is amended as follows. Use Figures 32-4 to 32-8 of ICA-D206-667 for further reference. For crosstubes of an earlier change number, it is recommended that if the supports are removed, the supports should be reinstalled using the procedure listed below.

32.4 SUPPORT INSTALLATION

- 32.4.1 Locate the area on crosstube for installation of support (ref. Figures 32-4 to 32-8 of ICA-D206-667). For D206-667-101/-103/-107/-201 and D407-667-105 crosstubes, the outward face of the support tabs should be 13.08" (332mm) from the crosstube center. For D206-667-203/-207 crosstubes, the outward face of the support tabs should be 10.03" (255mm) from the crosstube center. Ensure paint finish of crosstube is intact; touch up as required per Chapter 5 (5.3.9) of ICA-D206-667.
- 32.4.2 If present, remove any paint/primer on bottom of supports. Abrade mating surfaces of support and crosstube with 400-grit sandpaper. Saturate a clean cloth with MEK or 4105S Wash'n'Wipe Degreaser or equivalent and wipe until there is no residue.
- 32.4.3 Ensure a layer of 3M Scotch-Weld 2216 B/A Epoxy Adhesive is on the bottom of the support. If required, either apply or touch-up support to have a 0.03" to 0.05" thick layer of adhesive over the entire mating surface. Allow supports to cure for 24 hours.
- 32.4.4 Abrade mating surfaces of support (after cure) and crosstube with 180-grit sandpaper. Saturate a clean cloth with MEK or 4105S Wash'n'Wipe Degreaser or equivalent and wipe until there is no residue.
- 32.4.5 Apply a 0.04" to 0.07" thick layer of Proseal 890 Class B or AMS-S-8802 Class B sealant underneath applicable support and install support.
- 32.4.6 Install the clamps opposite to crosstube support as shown in Figures 32-4 to 32-8 of ICA-D206-667. Install rubber cushions underneath each clamp around the bottom circumference of the crosstube up to the crosstube centerline. Torque clamps 80-100 in·lb (9.0-11.3 Nm). It is acceptable to use smaller or larger sized MS21920-XX clamps than those listed in ICA-D206-667, ensure that after torquing the clamps per this instruction, the nuts are in safety but not bottomed out
- 32.4.7 Prior to installing crosstube on aircraft, allow supports to cure for 72 hours and recheck torque on clamps.

CANADA
DEPARTMENT OF TRANSPORT
AIRCRAFT CERTIFICATION
BRANCH
DAO # 01-O-01

APPROVED

BY: 
D. SHEPHERD (DE # 02)

DATE: 11.07.20
CERT. NO.: SH01-5
ISSUE NO.: 3

A	NEW ISSUE	CP	11.07.15
REV.	DESCRIPTION	BY	DATE
DESIGN		DART AEROSPACE LTD	
DRAWN		HAWKESBURY, ONTARIO, CANADA	
CHECKED	ASS	DRAWING NO.	REV. A
MFG. APPR.	N/A	DSI 9565	SHEET 1 OF 1
APPROVED		TITLE	SCALE
DE APPR.		SUPPORT INSTALLATION CHANGE	NTS
DATE	11.07.15	COPYRIGHT © 2011 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	

B 129297

407-667-105 Folio

Setup

Use 1.6" spacers under 2.25 rollers

2.935" (2.875 + one .060 shim) for SA,, 2.995 (2.875 + two .060)shims for SB Spacer in buggy on large table/adjust supporting rollers as required.

19.25", **36.4"** RED from cuff, centerline is @ 56.6

LARGE TABLE

Run programs 407f 01-07 without stopping going down the taper, **36.4" line**, approaches are Y 3200 and W 1750. CHECK

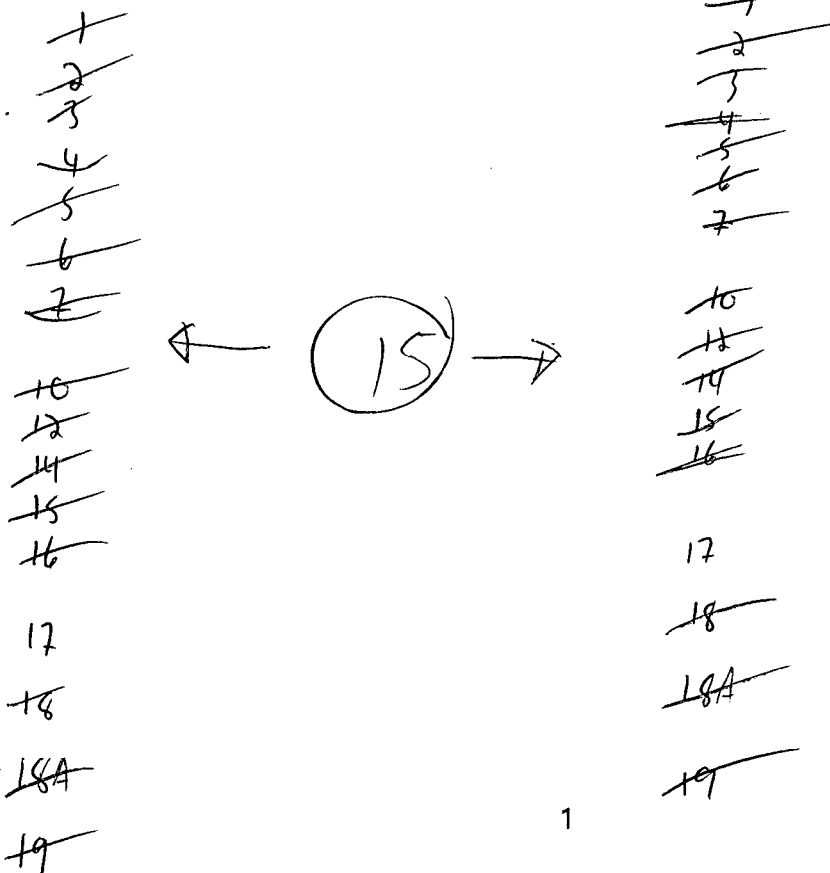
Then run programs 407f 10-16 without stopping from **19.25" line**. "CHECK" approaches are Y 3500 and W 3200 for all programs running up taper, . Programs 17 and up are to finish tube off if necessary. CHECK between each program.. **Large table**

in order to reduce the height, increase cuff angle at program 7. tubes are still finishing too high. jw 11-08-26

- update: increased power on step 9 of prog 7 by 20 points. tubes are finishing at prog 19. height fixed.

12-08-01 after program 7 on both tubes, side "B" had bent in substantially more than side "A". approximately 4" more than the first side. tubes both turned out okay, but were watched closely on the second side.

13-02-14 Bent 2 as per folio.. (1-7 CHECK.. 10-16 CHECK).. ran 17, 18, 19, 20... checking between each, 1st tube finished on 20, 2nd finished on 19..... (run 18a if really close to finished tangent line) MO



102

102

Dart Aerospace Ltd.
1270 Aberdeen Street
Hawkesbury, ON K6A 1K7
Tel: 613 632 9577
Fax: 613 632 1053

PURCHASE ORDER

Purchase Order ID PO29048

Purchase Order Date 7/7/2015

PO Print Date 7/7/2015

Page Number 2 of 3

Order From :
SKYSERVICE
6120 MIDFIELD ROAD
MISSISSAUGA, ONTARIO L5P 1B1
CANADA

VC-SKY001

Ship To : DART AEROSPACE LTD
1270 ABERDEEN
HAWKESBURY, ON K6A 1K7
CANADA

Contact Name

Vendor Phone 905-678-5636

Ship To Contact

Ship To Phone

Ship Via: Delivered

Ship Acct:

Buyer

Customer POID

Customer Tax # 10127-2607

Terms Net 30

Currency CAD

FOB FCA - (Free Carrier)

Chantal Lavoie

3	132260	D407-667-105 CROSSTUBE	7/8/2015	1.00	\$202.50	\$202.50
			Yes 7/8/2015			

LIQUID PENETRANT INSPECTION AS PER QSI 038 OR
LPI AS PER ASTM 1417 LEVEL 2

Line Total: \$202.50

4	134084	D407-667-105 CROSSTUBE	7/8/2015	1.00	\$202.50	\$202.50
			Yes 7/8/2015			

LIQUID PENETRANT INSPECTION AS PER QSI 038 OR
LPI AS PER ASTM 1417 LEVEL 2

Line Total: \$202.50

5	134085	D407-667-105 CROSSTUBE	7/8/2015	1.00	\$202.50	\$202.50
			Yes 7/8/2015			

Line Total: \$202.50

Note:

7/7/2015

**skyservice****Work Order Traveler**
Sky Service F.B.O. Inc.

DOT APP 53-89 / EASA 145.7142 / BDA AMO 385

WO #: MWO25139	Customer: Dart Aerospace Ltd.	Dept: NDT YUL	Reference: 29048
Descr:	PN:	S/N:	Qty: 1
Make:	Model:	Reg:	A/C S/N:
TSN:	CSN:	TSO:	

Task: UNSCHEDULED	Sequence: 1
--------------------------	-------------

Work Required:

CARRY OUT NDT ON 4 FWD CROSSTUBES AS PER PO29048
ITEMS ID# D407-667-105, WORK ORDERS ID# 132259, 132260, 134085, 134084

Action Taken:	Date:	Initial/Stamp:
LPI C/O IAW ASTM E-1417M-13 NO CRACK FOUND PEN. ZL-56, MPO13600, UV M-20141, CLEANER SKC-S MPO13923 , DEV. MPO11715	JUL 07 2015	 

Description	Location	P/N	Qty	Batch	S/N Off	S/N On

15-07-07

I certified that the maintenance described above has been performed in accordance with the applicable standard of airworthiness.

Signature:	ACA/SCA Stamp	Date:
Name: RAFIK MELIKIAN		JUL 07 2015